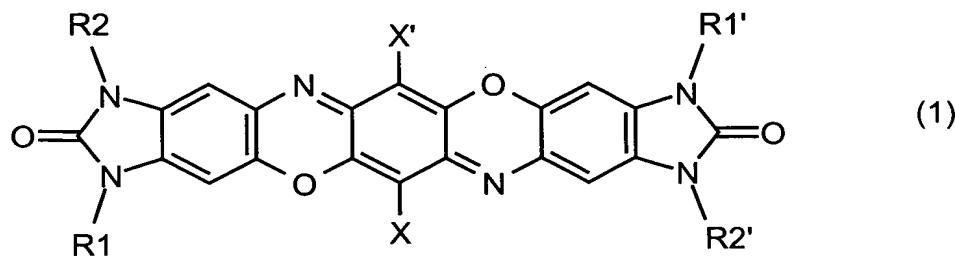


CLAIMS:

1. A mixed crystal of two or more different benzimidazolonedioxazine compounds of the formula (1)



where

X and X' are identical or different and are hydrogen or halogen, R1, R1', R2 and R2' are identical or different and are hydrogen, C₁-C₁₈ alkyl, trifluoromethyl, C₁-C₁₈ alkylcarbonyl, C₅-C₆ cycloalkyl or phenyl which may be unsubstituted or substituted by one or more halogen atoms, nitro groups, trifluoromethyl, C₁-C₁₈ alkyl, C₁-C₁₈ alkoxy, C₁-C₁₈ alkylcarbonyl and/or C₁-C₁₈ alkoxy carbonyl groups.

2. The mixed crystal as claimed in claim 1, wherein each of the different compounds of the formula (1) may be present in the mixed crystal at from 1 to 99 mol%.

3. The mixed crystal as claimed in claim 1, wherein X and X' are hydrogen, fluorine, chlorine or bromine.

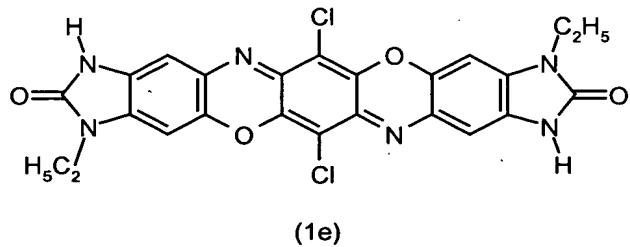
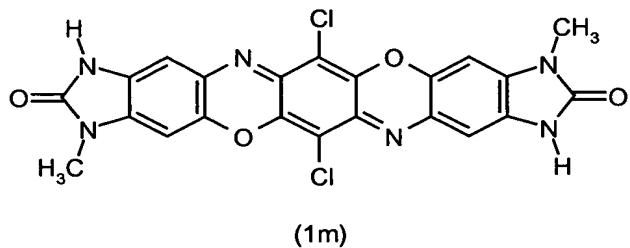
4. The mixed crystal as claimed in claim 1, wherein R1, R1', R2 and R2' are hydrogen, C₁-C₄ alkyl, especially methyl, ethyl and propyl, trifluoromethyl, C₁-C₄ alkylcarbonyl, cyclohexyl or phenyl which is unsubstituted or substituted by 1, 2 or 3 radicals from the group consisting of fluorine, chlorine, bromine,

nitro, methyl, ethyl, propyl, methoxy, ethoxy, methylcarbonyl, methoxycarbonyl and ethoxycarbonyl.

5. The mixed crystal as claimed in claim 1, wherein X=X'=Cl, R2=R2'=H, and R1 and R1' independently of one another are methyl or ethyl.

6. The mixed crystal as claimed in claim 1, consisting of two different compounds of the formula (1) in a molar ratio of from 1:9 to 9:1, preferably from 1:3 to 3:1.

7. The mixed crystal as claimed in claim 1, consisting of the compounds of the formula (1m) and (1e), preferably in a molar ratio of from 1:9 to 9:1

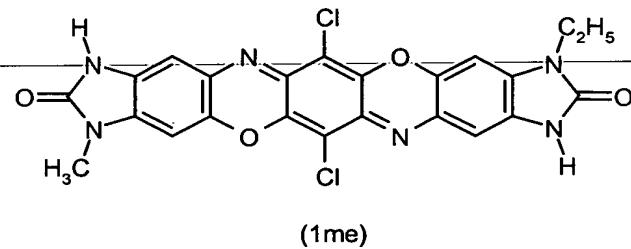
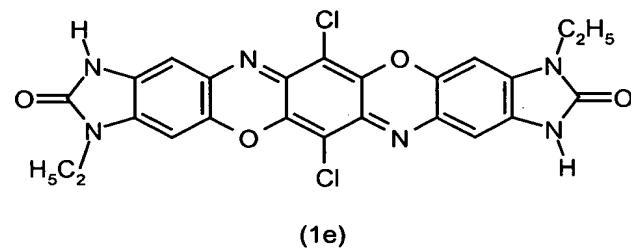
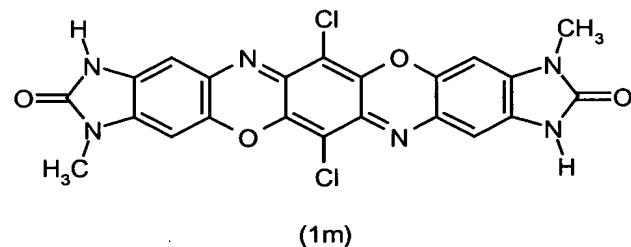


8. The mixed crystal as claimed in claim 7, characterized by the following lines in the X-ray powder diffraction pattern (Cu-K α radiation, twice the Bragg angle 2 Θ in degrees, the intensities in brackets).

5.09 (weak), 6.36 (moderate), 10.78 (moderate-strong), 12.07 (weak, broad), 14.17 (moderate-weak), 19.37 (weak), 20.75 (weak), 21.69 (weak), 23.07 (weak), 24.88 (weak), 25.97 (moderate), 26.94 (strong), 28.09 (very weak).

9. The mixed crystal as claimed in claim 1, consisting of three different compounds of the formula (1) in a molar ratio q:r:s, q and r independently of one another being situated within a range from 1 to 10, preferably from 3 to 7, and s in the range from 0.1 to 100, preferably from 1 to 50.

10. The mixed crystal as claimed in claim 1, consisting of the compounds (1m), (1e) and (1me)

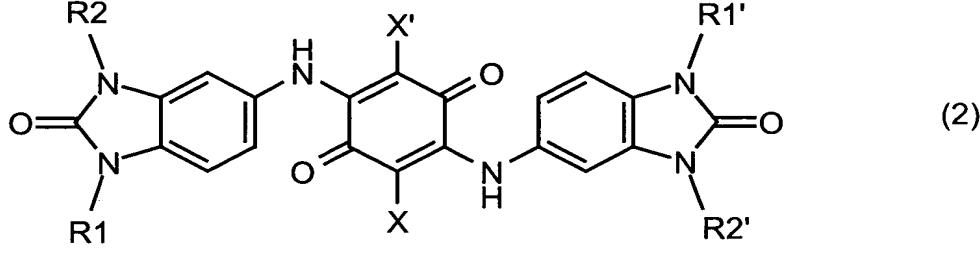


11. The mixed crystal as claimed in claim 10, wherein the molar ratio between the compounds of the formulae (1m) and (1e) is between 1:10 and 10:1, in particular between 1:3 and 3:1, and the molar ratio of (1me) to the sum of the molar fractions of (1e) and (1m) is between 1:10 and 10:1, in particular between 1:3 and 3:1.

12. The mixed crystal as claimed in claim 10, characterized by the following lines in the X-ray powder diffraction pattern (Cu-K_α radiation, twice the Bragg angle 2Θ in degrees, the intensities in brackets):

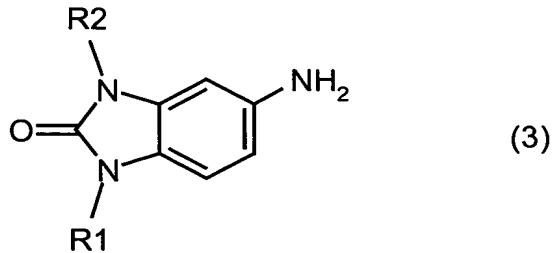
6.37 (moderate), 10.78 (moderate), 10.90 (moderate-strong), 13.91 (weak), 14.39 (moderate-weak), 19.48 (moderate-weak), 20.71 (weak), 21.82 (weak), 23.07 (weak), 24.74 (very weak), 25.92 (moderate-weak), 27.05 (strong), 28.15 (very weak), 28.99 (weak).

13. A process for preparing a mixed crystal as claimed in claim 1, which comprises reacting a mixture of two or more different compounds of the formula (2)



with sulfuric acid in the presence of an oxidizing agent, preferably manganese dioxide, and heating the product, where appropriate, with polar organic solvents at a temperature of between 40 and 250°C.

14. A process for preparing a mixed crystal as claimed in claim 1, which comprises reacting a mixture of two or more different compounds of the formula (3)



with chloranil, reacting the resulting mixture with sulfuric acid in the presence of an oxidizing agent, preferably manganese dioxide, and heating the product, where appropriate, with polar organic solvents at a temperature between 40 and 250°C.

15. The process as claimed in claim 13, wherein the polar organic solvent is a C₁-C₂₀ alcohol, preferably n-butanol or isobutanol, dimethylformamide or N-methylpyrrolidone.

16. A process for producing a mixed crystal as claimed in claim 1, which comprises dissolving a mixture of at least two different compounds of the formula (1) in sulfuric acid, dichloroacetic acid or trifluoroacetic acid and reprecipitating it with water or acetic acid.

17. A process for preparing a mixed crystal as claimed in claim 1, which comprises sublimating a mixture of two or more different compounds of the formula (1) together.

18. The use of a mixed crystal as claimed in claim 1, for pigmenting paints, plastics, printing inks, aqueous or solvent-based pigment preparations, electrophotographic toners or developers, powder coating materials, inks,

preferably inkjet inks, color filters, or for coloring seed or cosmetic articles, for coloring paper in the mass, or for textile printing.